Third Degree Laceration at Delivery

Etiological Considerations, and a Technique for Repair

JAMES V. McNULTY, M.D., *Los Angeles*

• *In a series of 14,080 cases in which either median or mediolateral episiotomy was used to facilitate delivery, third degree extension occurred in 75 cases (0.5 per cent). In related data extension of laceration was observed to occur in an inordinately high proportion of cases in association with use of forceps, greater than normal anterior pelvic depth, delivery of a large baby, primiparity, abnormal position and presentation, use of median incision (although extension also occurred in some cases in which mediolateral episiotomy was done), and hyperflexion and extreme abduction of the thighs.*

The method of immediate postpartum repair employed was associated with a minimal amount of postpartum discomfort, and late complications were almost nil.

RECENT REPORTS indicate a gradual but positive trend in this country toward routine employment of median episiotomy in vaginal delivery. Eastman[1] stated that median episiotomy is a satisfactory procedure in nine out of ten deliveries. Kaltreider and Dixon[2] after extensive review of cases concluded that median episiotomy is suitable in 93 per cent of deliveries. It may be anticipated that with such teaching now appearing in standard texts, median incision will come to be used almost exclusively in obstetric care. As it is inevitable that third degree laceration will occasionally occur in cases in which median episiotomy is carried out, consideration of the causes and the repair of such lesions comes to the fore.

Study was made of 75 cases of third degree laceration that occurred in a total of 14,080 patients in whom episiotomy (either median or mediolateral) was done during the period January 1, 1946, to January 1, 1951 (see Table 1). The incidence of third degree laceration was 0.5 per cent. The attending physicians were a mixed group—residents, nonspecialists and specialists.

Seven of the 75 patients were between 15 and 20 years of age, 48 were between 20 and 30, and 20 were between 30 and 40. As fecundity is usually associated with the third and fourth decades of life, the age of the patient did not appear to be an important factor relative to the occurrence of third degree laceration.

Sixty-one of the patients were primiparae and 14 multiparae, as would be expected in light of the lesser distensibility of pelvic tissues in primiparae.

The average duration of labor was ten hours, the longest 27 hours, and the shortest 31 minutes. Although it is logical to expect rectal injuries in cases of prolonged labor, which often causes edema and friability of tissues and is associated with difficult delivery, the incidence of lacerations in this series cannot be explained on that basis, in view of the relatively short average period of labor.

TABLE 1.—*Median and mediolateral episiotomy in a series of 14,080 cases*

Episiotomy	No.	Per cent of series
Median	6,577	47
Mediolateral	7,503	53
Total	14,080	100

Note: Third degree extension occurred in 75 cases (0.5 per cent).

TABLE 2.—*Fetal position*

Occiput anterior		62
Occiput posterior:		
Kielland rotation	3	
Manual rotation	3	
Occiput posterior as such	2	
Total occiput-posterior		8
Breech presentation		5

The occiput posterior is said to occur in 20 per cent of all deliveries and breech presentation in 4 per cent. When the incidence of third degree extension associated with these positions in this series (Table 2) is viewed in light of the fact that third degree laceration occurred in only 0.5 per cent of all cases in the series, it is obvious that fetal position was an etiologic factor.

As forceps were used in 62 of the 75 cases (a high proportion) the use of forceps must be indicted as an etiological factor in third degree lacerations.

While it was to be expected that extension of laceration would occur relatively often when median episiotomy was carried out, there was also a fairly high incidence of third degree extension associated

Presented before the Section on Obstetrics and Gynecology at the 81st Annual Session of the California Medical Association, Los Angeles, April 27-30, 1952.

with mediolateral episiotomy, a procedure used to avoid rectal injury. In 59 of the 75 cases median episiotomy was used, in 12 mediolateral. Episiotomy was not done in four cases in which third degree laceration occurred.

TABLE 3.—*Weight of babies in cases of rectal laceration in present series, as compared with general average incidence of babies of each size*

Grams	Associated with rectal laceration (per cent)	Average clinic incidence (per cent)
2268-2722	7.0	6.4
2722-3175	17.3	16.3
3175-3629	33.2	44.7
3629-4082	22.6	30.6
4082-4536	17.3	1.6
4536-4990	2.6	.4

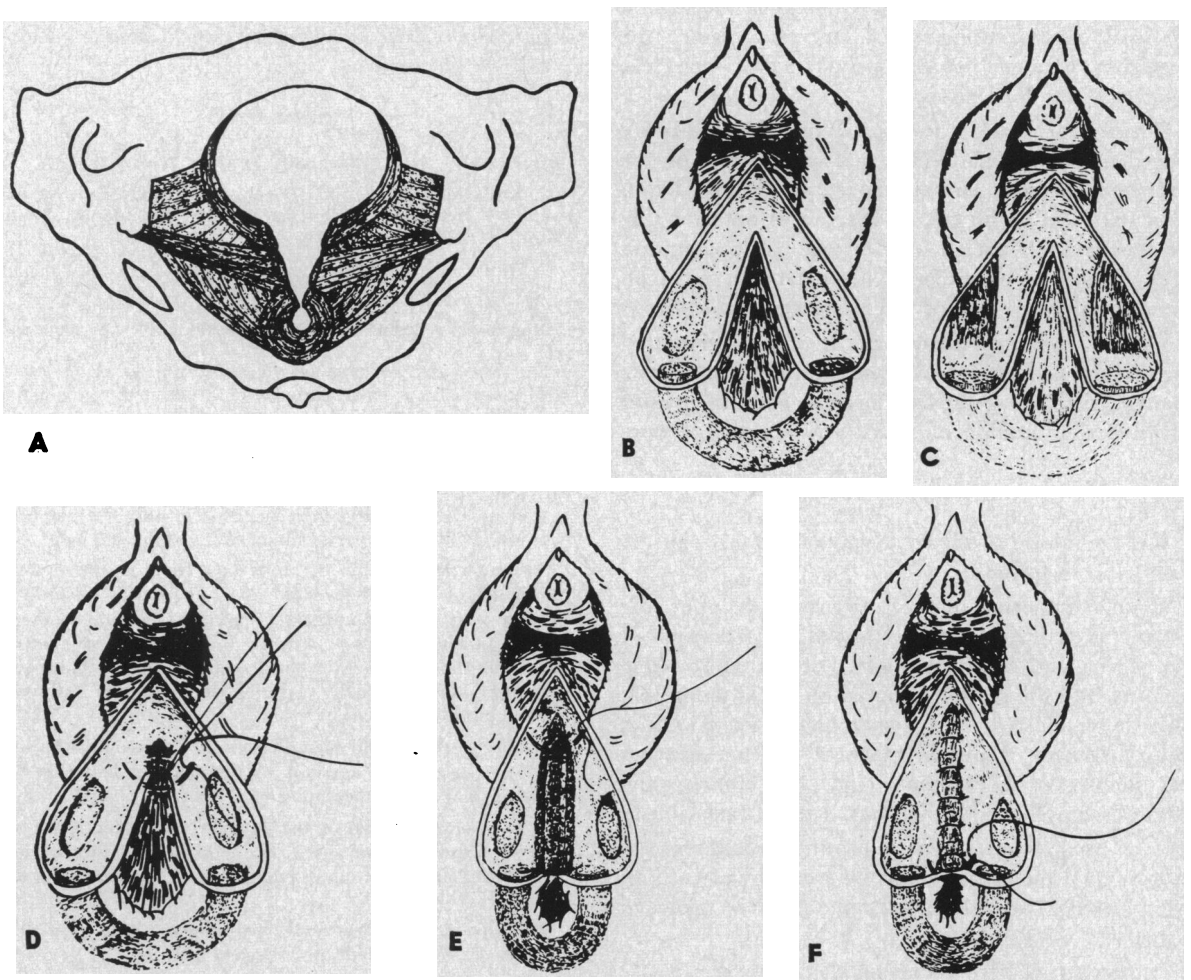
Large babies were associated with third degree laceration in a significant number of cases (Table 3).

General anesthesia was used in 13 cases and spinal anesthesia in 62, but it cannot be concluded from that fact that spinal anesthesia is an etiological factor in third degree laceration, for spinal anesthesia was employed in the majority of deliveries surveyed in this study.

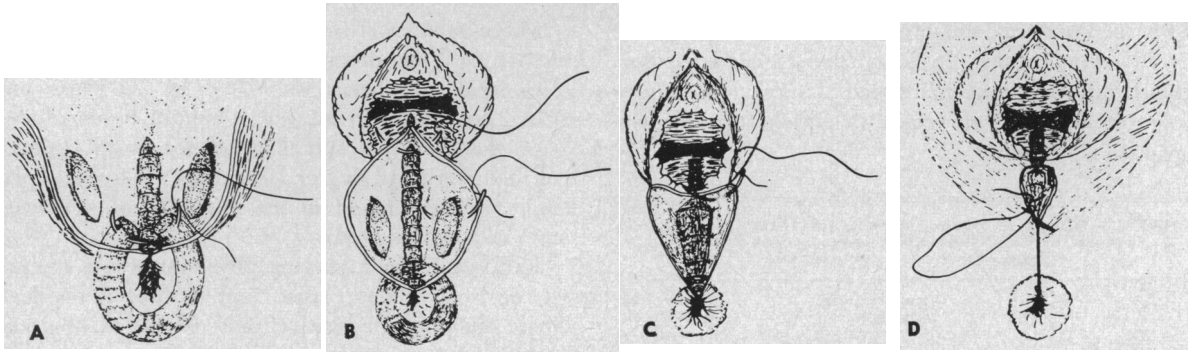
In 58 cases the attending physician was a specialist, in 13 a non-specialist, and in four a resident. These data are indicative only of the widespread employment of median episiotomy by specialists.

MISCELLANEOUS FACTORS

Anterior Pelvic Depth. From a mechanical standpoint it is apparent that if the anterior pelvic depth



A, diagrammatic illustration of the muscle structures involved in third degree laceration. *B*, the tissues to be repaired. Note the prominence of the severed deep transverse perineal muscles which are often mistaken for the sphincter ani. *C*, taken from a drawing in Greenhill's text, purports to show the presence of the exposed levator muscles indicated by X. Actually, however, the levators lie too far laterally to be seen in median episiotomy. It is the fascia covering the levators that is visible, and it is this structure alone that is reapproximated in the repair. *D*, the repair is commenced at the apex of the rectal laceration with interrupted sutures. The first layer goes through only the serosa, muscularis and submucosa of the rectum to bring about inversion of the edges. Suturing is carried down to the anal pillars. *E*, a second layer of interrupted sutures is started just above the apex of the first layer and includes the perirectal fascia and a portion of the fascia of the rectovaginal septum. *F*, the second layer is carried past the anal margin to the skin of the perineum.



After the rectal wall has been repaired in two layers, the cut ends of the sphincter ani are grasped with two Allis clamps. Then, *A*, two or three mattress-type sutures are used to approximate the severed ends, with care taken to include only the fascial sheath and peripheral portions of the sphincter ani, since sutures through the muscle body produce painful spasm of the muscle. *B*, similar approximation of the cut ends of the deep transverse perineal muscles. *C*, approximation of the superficial fascia. *D*, subcuticular closure of the skin.

is greater than normal there is increased likelihood of third degree extension of laceration, since the posterior segment of the pelvic outlet must be opened wider for delivery.

Position of Legs in Stirrups. When the thighs are placed in extreme abduction and hyperflexed on the abdomen, the skin and superficial fascia are drawn tight over the perineum, which causes anterior displacement and fixation of the rectum. Concomitant with the loss of elasticity of the perineum is an increased tendency toward third degree extension.

Type of Forceps Employed. It would seem that use of forceps having a wide separation of opposing shanks, such as Simpson forceps, entails greater liability of extension of laceration into the rectum.

TECHNIQUE OF REPAIR

The technique of repair of laceration used by the author is as follows:

Upon completion of the third stage of labor, the patient is redraped and a thorough inspection of the vagina and cervix is made. Often a button-hole opening into the rectum is noted on rectal palpation. This is converted into a complete laceration. A Gelpi retractor is put in place at the mucocutaneous junction of the vaginal orifice. No. 000 chromic catgut is employed throughout. (See illustrations.)

After operations all patients are treated exactly as a normal puerpera would be treated except that, when enemas are given, extreme care is taken to direct the nozzle posteriorly.

In the series here reviewed there was a slightly higher morbidity rate than is associated with cases in which third degree laceration does not occur, but in none of the three cases in which this reaction did develop was it directly attributable to perineal infection.

The most common complication, secondary anemia of moderate to severe degree, occurred in 16 cases. There were no rectovaginal fistulae or wound separations. Anal cryptitis developed in one case.

1930 Wilshire Boulevard.

REFERENCES

1. Eastman, N. J.: Textbook of Obst., 1950, 411-415.

2. Kaltreider, D. F. and Dixon, D. McC.: Study of 710 complete lacerations following central episiotomy, South. M. J., 41:814, Sept. 1948.

Discussion by* CLYDE V. VON DER AHE, M.D., *Los Angeles

For any operative obstetrical procedure, speaking generally, complications exist. This factor, when properly weighed and evaluated, will determine the safety of any given procedure. The solitary objection to the use of median episiotomy has been the danger of downward extension through the anal sphincter and rectal mucosa. In the series presented by Dr. McNulty, this occurred in only 0.5 per cent. The usual incidence varies from two to four per cent.

As important as it is to know how to properly repair a complete (or incomplete) third degree perineal laceration, I think it is equally important to know the limitations of median episiotomy; so that when it is used we can anticipate that the incidence of third degree perineal laceration will drop, and eventually parallel the incidence following mediolateral episiotomy.

Briefly to review and reemphasize this, the conditions limiting the use of the median episiotomy are listed in the order of their importance:

1. The subpubic arch or the anterior pelvic depth. As the arch becomes more narrowed, the fetal head is forced more posteriorly, in order to gain enough room to pass under the arch.

2. Malposition of the fetal head, particularly persistent occiput positions and deep transverse arrests.

3. The use of forceps. I am happy to hear Dr. McNulty emphasize this point. It has been my conviction for a long time that the shank and the blades of the forceps are as important as the fetal head in the production of third degree lacerations. Median episiotomy is also contraindicated in cases of forceps-rotation, and in breech deliveries with forceps on the after-coming head.

4. Not only is the length of the perineal body important, but also the texture of the perineal tissue. The latter, how-

ever, is unpredictable. This tissue may give way readily when a firm perineum is expected.

In the performance of median episiotomy, it is important to incise the vaginal mucosa upward for a distance of at least five centimeters. This procedure not only prevents tearing upward into the vault, but actually allows the repair of the rectovaginal fascia at a higher level than ordinarily would be possible. This, coupled with postpartum perineal exercises, is an important step forward in the prophylaxis of uterine prolapse.

It is my belief that the routine use of the prophylactic angle suture following median episiotomy is important. This suture, introduced by the late Dr. Norman Williams, consists of a double strand of 00 or 000 catgut, placed about one inch lateral to the lowermost point of the episiotomy. It goes through the perineum, comes out in the vagina below the mucosa, and then outward on the opposite side, through the skin of the perineum one inch lateral to the angle of the episiotomy. This suture is tied loosely enough to admit two fingers into the loop. It is a real aid in preventing the downward extension of the episiotomy. We have had but two cases of complete perineal laceration since using this technique, and in one other case it was necessary to cut the sutures because of pronounced edema of the fetus. The suture was cutting the baby's skin.

Finally, I think that the figures presented in Dr. McNulty's paper tend to substantiate the growing feeling that median episiotomy can be used more frequently without materially menacing the patient or increasing the incidence of third degree perineal laceration.

Placement Assistance for Doctors

The American Medical Association recently initiated a new program to acquaint physicians leaving military service with existing medical opportunities, and to assist State Selective Service Medical Advisory Committees in replacing deferred physicians classified as Priority 1 under the "Doctor Draft Law."

This program, inaugurated by the A.M.A. Council on National Emergency Medical Service with the cooperation of the Department of Defense and the Selective Service System, has the enthusiastic endorsement of state medical societies and chairmen of Selective Service Medical Advisory Committees.

The names of physicians to be released from service, and other necessary information, will be supplied to the Council on National Emergency Medical Service by the offices of the three surgeons general. The council will communicate with each of these physicians to determine, in general, his post-service plans, his medical qualifications and specialty, as well as the state in which he prefers to work.

The names of physicians interested in receiving additional information will then be grouped by states and sent to State Selective Service Medical Advisory Committees. While these names are being forwarded primarily as potential replacements for deferred Priority 1 physicians, further action, if any, with respect to them will depend entirely on the wishes and desires of the advisory committees.

This same information will be made available to state medical societies through the Physicians' Placement Service of the A.M.A. Council on Medical Service in accordance with current procedures.

—From the A.M.A. *Secretary's Letter*